

Application of Nouri E. Hakim  
Serial No.: 10/001,257 filed 11/27/2001  
Response of October 28, 2003 to Office Action of May 28, 2003

#### Remarks

Receipt is acknowledged of the Office Action of May 28, 2003 in the above-captioned matter. Further to the Office Action an election of species is provided above. In addition, new claims are presented herein consistent with the elected species. A four month extension of the time provided for response and any further extensions that may be deemed required are requested. The Commissioner is hereby authorized to charge all amounts due to Deposit Account No. 50-1604.

#### Request for Confirmation

In the prosecution of applications to Applicant's inventions, the claims of this application and the claims in the issued parent both use the term "opening". Since this term is used both in the parent application and herein, Applicant would like for that term "opening" to be given the same scope in the present claims as it was given by the Examiner in the claims of the issued parent (S/N 09/138,588, issued as U.S. Patent No. 6,321,931 B1). Accordingly, brief confirmation from the Examiner would be appreciated as to whether the term "opening" of the present application and parent includes a hole.

It is believed that in the parent application the Examiner considered the term "opening" as including any hole since the specification expressly states: "The opening 70 can be, for example, a slit, a slot, an orifice, a hole, or so forth". See, U.S. Patent No. 6,321,931 B1 at Col. 8 lines 56-61. (Copy of page attached) (Emphasis added herein). A confirmation of this is requested. If, however, the Examiner did not consider the term "opening" to include a hole, an indication of the meaning that was given by the Examiner would be appreciated.

In summary, Applicant would like to use the same term "opening" herein as used in the prior issued claims, and would like it to be given the very same scope as it was given previously. (Copies of the relevant pages of the specification and prosecution history from the issued parent, including from Applicant's responses of October 2, 2000 and March 16, 2001, are attached for the Examiner's reference and convenience). This confirmation will greatly assist Applicant in the prosecution of this application and in enforcing Applicant's rights against infringers. Applicant thanks the Examiner in advance for his consideration.

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Amendment to the Specification

The specification has been amended to further recite that the flexible material can be in contact with a cross-bar if desired, consistent with the invention. This embodiment is shown in Figure 7. Accordingly, no new matter has been added.

Information Disclosure Statement

An Information Disclosure Statement (IDS) with attached references is being submitted under separate cover.

It is believed that the claims are all fully patentable over the references of the IDS, since the references do not teach or suggest the subject matter of the pending claims. Of the references, Kanner, Schmitt and ICA were previously forwarded in a prior IDS, but are being forwarded again for completeness.

The present invention is not taught or suggested by any of the references of record, either individually or in combination.

With respect to Kanner, Schmitt and ICA, for example, they all relate to very different devices than the inventions herein. Kanner relates to a device for sterilizing contact lenses. ICA relates to a device for dispensing shampoo or liquid soap, or for storing coffee. Schmitt relates to a valve such as for use in an internal combustion engine. None of those references teach a no-spill drinking apparatus as recited in the claims. They do not teach any apparatus to drink liquid out of, nor for preventing accidental spilling of liquid. Thus, none of the references are art against the present invention under §102.

Moreover, none of those three references teach an apparatus in which sucking (negative pressure) is applied to drink liquid out of the apparatus. Those references also do not teach a spout. They also do not teach an apparatus having an air vent. As a result, for those reasons also, none of those references are art against the present invention under §102.

Likewise, it would also not be obvious under §103 to combine those references with other references of record to obtain a no-spill drinking apparatus of the present invention. On the contrary, the references all teach away from the present invention. As set forth in the specification

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and claims, the no-spill drinking apparatus of the present invention is specifically designed to allow air into the vessel. In contrast, those references state that air must not be allowed into the vessel.

ICA states that it is directed to containers having a unidirectional valve. Such unidirectional valves are provided to allow outlet of gases from the bag, and to prevent air from entering the bag. See, col 1 lines 25-28, and col. 6 lines 35 -38, et seq. ICA expressly states that air must not be allowed to enter the container.

Kanner, likewise, also indicates that it is directed to a "one-way check valve". See col 3 lines 1-10. Such unidirectional or one-way valves are likewise provided to allow vent discharge of pressurized gas out of the container only, and to prevent any entry of air into the container. See, e.g. col 2 lines 58 - col 3 line 10. Entry of air is prevented to avoid contamination. See, col 3 lines 5-10. Thus, Kanner also is directed to a device which must not allow air into the container. Similarly, Schmitt is also directed to a one-way "non-return" valve. See e.g., Abstract lines 1-2.

Accordingly, the invention cannot be obvious over any of these references either alone in combination with any other art of record. The references all teach away from the present invention since they teach devices in which air must not enter the container. The present invention is directed to the opposite, in which air is specifically directed into the container.

Thus, the present invention cannot be obvious over any of those references, either alone or in combination with others. As set forth in the MPEP, references can not render claims prima facie obvious under §103 when a proposed modification or combination of the art would change the principle of operation of the prior device being modified. See e.g., MPEP 2143.01, sixth subsection (p. 2100-125, August 2001). Here, any modification of the references to allow in air would completely change the principle of operation of those prior devices. Such modification would be contrary to what those references specifically require. The principle of the present invention is the opposite of the principle of operation of the devices in those references, since it requires the entry of air which those references prohibit. Accordingly, claims 70 and 80, and any claims dependent thereon, cannot be obvious over those references, whether considered individually or in conjunction with other art.

Likewise, as also set forth in the MPEP, for there to be obviousness under §103, the fact that

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references can be combined or modified does not render the resultant combination obvious unless the art also suggests the desirability of the combination. *See e.g.*, MPEP 2143.01, third subsection (p. 2100-124, August 2001). Not only do the references not suggest the desirability of modifying them, they expressly teach against modification to allow in air. They indicate that such modification would be totally undesirable.

Moreover, for a reference to even be available for a citation under §103, the reference must be in "the art to which said subject matter pertains". *See*, 35 U.S.C. §103(a). These references do not meet this express requirement of §103 since they are not in the art to which the present subject matter pertains, nor are they analogous art. The present invention relates to an apparatus for drinking out of, and for preventing spilling. Those references, in contrast, are in entirely unrelated fields, and relate to contact lens sterilization, coffee, shampoo, and liquid soap, and to internal combustion engines.

None of the references teach or suggest providing an apparatus with a valve for use with drinking liquids. Liquid soap and shampoo are thick, slow flowing substances. It would not be apparent to use a valve for such a viscous slow flowing substance for a drinking cup which is for fluids of much different properties, and which must flow rapidly. Likewise, Kanner is a valve for gases; which is not at all like the liquids for use in a drinking cup. Schmitt is for valves such as for internal combustion engines, which are also nothing like drinking cups.

Thus, those references are not available as art against the present invention under §103, and are also non-analogous art. ICA relates to a container for shampoo or liquid soap or coffee. *See e.g.* col 6 lines 35-38, and col 1 29-32. Kanner relates to a chemical sterilization appliance for such articles as contact lenses, and to pressure relief venting of such containers. *See*, col 1 lines 8-11. Schmitt relates to a valve such as for use in an internal combustion engine. *See*, col 2 lines 17-22. None of those references are related in any manner to drinking cups.

As set forth, for example, in MPEP 2141.01(a), for a reference to be available under §103, it must either be in the field of applicant's endeavor or, if not, must be reasonably pertinent to the particular problem with which the inventor was concerned. These references are not in the field of applicant's endeavor, nor are they reasonably pertinent to the particular problem with which the

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inventor was concerned. "A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem." See, MPEP 2141.01(a). None of those completely unrelated fields (contact lens sterilization, storage and dispensing of coffee, shampoo, or liquid soap, or internal combustion engines) would, by any means, have logically commended themselves to the inventor's attention in considering the design of devices to drink out of. Shampoo, chemical sterilization, internal combustion, etc. have nothing to do with drinking. Nor do they have anything to do with a device which is designed to be no-spill. As a result, the present invention cannot be obvious under §103 over any of those references.

As a result, it is submitted that claims 71, 82, and all claims dependent thereon are all fully patentable over all of the art of record.

Claim 82 and its dependents are patentable for the same reasons set forth above. In addition, claim 82 also recites that the flexible material is in the shape of a bowl. The bowl is initially upright with the opening in its bottom resting against the blocking element, and begins to invert upon application of negative pressure to said flexible material (sucking at the spout). The bottom of said bowl and the opening in the bottom rise toward the top of the bowl-shaped flexible material, allowing liquid to exit through said opening.

This design for a no-spill drinking cup is also not taught or suggested in any manner in the references of record. The references do not teach or suggest a bowl-shaped member with an opening, wherein the bottom of the bowl rises towards the top of the bowl (beginning to turn inside out) upon sucking at the spout. Thus, those claims are all fully patentable over all of the art of record for that reason also.

The methods of the independent claims with the further limitations of the dependent claims are also not taught or suggested in any of the art of record. For example, the method wherein a flexible valve is provided with an increased thickness of material on the area which seals against said blocking element; or a device is provided including includes a separable valve holder; or wherein a soft spout is also provided; or wherein a cross-bar in contact with the flexible material is also provided; or wherein such apparatus is provided for use by a child; or or so forth, are combinations

not taught or suggested by the art of record. Thus, those dependent claims are all allowable over the art of record as well.

For all of the above reasons, it is believed that claims 71 to 118 are all fully patentable over the art of record. Favorable action on the application and all of the claims is respectfully requested and believed fully warranted.

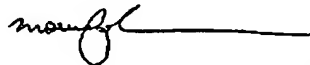
Request for Interview

In addition, Applicant respectfully requests an interview in this application. In view of the large number of references in the IDS, counsel believes that an opportunity to go over the references and claims with the Examiner would be valuable to efficiently move the prosecution of the application forward toward allowance.

The Examiner's attention to this matter is greatly appreciated and counsel respectfully thanks the Examiner in advance for his assistance.

Dated: October 28, 2003

Respectfully submitted,



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To drink from the cup, a user raises the cup to his or her mouth and begins to suck liquid through spout 14. In the process, the user creates negative pressure or a partial vacuum against the top of valve 42 in subunit 37. Valve 42 is constructed of a flexible material which is designed to fully invert and turn inside out, or to begin to invert and turn inside out, upon creation of a partial vacuum against the top of the valve 42, as shown in FIG. 8(e). For example, valve 42 can be a membrane, either in whole or in part. Preferably, the valve is constructed of Kraton or silicone. If silicone is used, a 45 durometer silicone such as Lims 6045 is preferred, which is available from General Electric or from Wacker (a subsidiary of Bayer) of Germany. The materials used for the valve assembly and its components are sufficiently durable and heat resistant that the entire valve assembly can be placed in a dishwasher or boiled.

In a preferred embodiment, the valve material is constructed of a single material with a greater thickness of material on the center area which seals off on the center stop, and with a thinner portion of material on the sidewalls. Providing a thinner sidewall portion contributes to the flexibility of the valve at its edges, which further assists and encourages inversion of the valve, by causing the valve to flex at the sidewalls first upon application of negative pressure thereto. Preferred dimensions for the valve thickness are approximately 0.4 mm of thickness on the sidewalls and approximately 0.9 mm of thickness on the center area.

Upon inversion of valve 42, opening or orifice 70 is displaced away from central area 56 of center stop 52. The inversion of the valve therefore unblocks opening 70 allowing fluid flow through the subunit. As negative pressure is being applied to the top of the valve 42 located next to the spout, negative pressure is likewise being applied to the bottom of the adjacent valve in the other subunit, located in the other tapered hole of the cup cover. Thus, this negative pressure, opens the second valve as well, by displacing the opening in the other valve away from its center stop. Inversion of valves 42 allows fluid flow to proceed through both subunits of the assembly. Liquid will flow through one subunit of the valve assembly, the subunit connected to the spout, concurrently accompanied by air flow through the other subunit of the assembly, the subunit connected to the air vents. In this manner, liquid smoothly and easily flows through the valve assembly, the spout, and out of the cup.

In a preferred embodiment, the valve assembly is further provided with a flow bridge 84. Flow bridge 84 blocks movement or expansion of the valve 42 beyond a certain maximum distance to prevent the valve from overextending itself, or from being subjected to excessive strain or distension, as shown in FIG. 8(e). Thus, the flow bridge prevents the valve from inverting beyond the point where it can no longer easily revert to its original position. In addition, the flow bridge provides a shield or a barrier preventing the valve from damage. Thus, it blocks objects such as a spoon or so forth, whether in a dishwasher or otherwise, from easily damaging the valve.

When negative pressure is released or removed from the spout, the valve reverts back to its resting position, and fluid cannot flow through the closed slit in the valve. In the resting position, no liquid will spill from or emerge out of the cup.

Further embodiments of the valve holder and assembly are shown in FIGS. 4 and 7-9. As shown in FIG. 4, instead of the valve retainer shown in FIG. 3, a detachable snap fit valve retainer 81 can alternatively be provided. Or, as shown in FIG. 7, valve retainer 94 can be provided as well. Valve retainers 81 and 94 serve the same function as valve retain-

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ers 37b and 39(b), holding and securing the valve within the valve assembly. It is preferred that the valve retainer, whichever embodiment is utilized, be sonic welded on, to ensure that the valve cannot be dislodged or removed from the holder.

Thus, in accordance with the invention, a system is provided for maintaining a tight seal against fluid flow when the cup is not in use. An extremely secure seal is provided, such that excessive or vigorous shaking is ineffective to force fluid out of the cup. Significantly, the valve construction disclosed results in a much tighter seal than that observed in the no-spill cup assemblies of the prior art. In accordance with the invention, unless the user sucks through the spout, no liquid will flow through the valve.

In the preferred embodiment, subunits 37 and 39 are preferably identical in all respects excepts for the size of the orifice or slit in valve 42 and the slit in valve 45. It is preferred that one valve be provided with a larger opening than the other valve, such as a longer slit in one valve than the other. In one embodiment, one valve is provided with an opening in the form of a slit of approximately two hundred thousandths ( $200/1000$ ) of an inch in length, while the second valve is provided with a slit of approximately fifty thousandths ( $50/1000$ ) of an inch. Alternatively, other lengths may, of course, be used as well in accordance with the invention.

By varying the size and/or shape of the opening in the valve, the present inventor has further provided a novel dual acting flow system for regulating fluid flow. In this system, the level of flow of liquid out of the cup during use can be easily regulated. Regulation is accomplished by a simple rotation of the valve assembly which converts the cup between a faster or higher liquid flow, and a slower or lower flow system.

As shown in FIG. 5, valve holder 31 can be inserted into cap 11 in either of two configurations. In a first configuration, valve 45, having a larger opening or slit, is placed into hole 18, the hole in communication with spout 14. In this configuration, a first, higher, flow level of liquid through the valve is established when the user sucks liquid through the spout, due to the use of the valve having the larger opening therein. By removing the valve holder 31 from holes 16 and 18, and flipping the valve holder 31 one hundred eighty degrees ( $180^\circ$ ), the other valve 42, having the smaller opening, can be inserted into hole 18. This valve 42 provides a second, lower flow state, in which liquid can still flow out of the spout, but at a lower flow rate than flow through the first valve. In this way, the rate of flow of liquid out of the cup can be regulated by a parent. Although a two level flow system is disclosed, greater or fewer flow levels can be provided by varying the number of attached subunits having valves therein, or by providing replacement valve holders having different sized openings 70 therein. In all configurations, however, liquid only flows through the valve when the user sucks through the spout, as disclosed above.

Any form of desired opening suitable for passage of a desired level of liquid can be utilized in the valve. The opening 70 can be, for example, a slit, a slot, an orifice, a hole, or so forth. Likewise, by the term opening, it is contemplated that multiple openings of these or any other types can be provided as well.

In one embodiment, the opening 70 is an "X" shaped slot 78, as shown in FIG. 7. In another preferred embodiment, the opening is a "T" shaped slot 76, as also shown in FIG. 7. Use of the X-shaped slot 78 shown in FIG. 7, will provide a higher flow rate than the T-shaped slot 76 shown therein. The flow rate, of course, depends on the total length of the

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